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ABSTRACT

The high incidence of reported posttraumatic stress disorder (PTSD) among Vietnam veterans has prompted researchers to search for reliable assessment and treatment procedures for this disorder. Although some encouraging preliminary data on the use of the Minnesota Multiphasic Personality Inventory (MMPI) have been obtained, it is uncertain if this instrument can be confidently used to assess PTSD in Vietnam veterans. Two recent studies have found that MMPI scale 8 (Schizophrenia) and scale 2 (Depression) can differentiate PTSD veterans from non-PTSD veterans. Although the 8-2/2-8 high point pair appears to have some validity for describing the behavioral correlates of PTSD, both PTSD and non-PTSD Vietnam veterans produced the same 8-2 high point pair in both of these studies, differing only in elevation and scatter. In addition, researchers have disagreed on what cut-off scores should be used to differentiate PTSD from non-PTSD veterans. Methodological problems in MMPI research on PTSD range from the questionable validity of profiles used to the significant lack of replicability. Even with the variability among results, the data indicate that PTSD Vietnam veterans do score higher on most MMPI subscales than non-PTSD Vietnam veterans. Consequently, there is a need for more research on the use of the MMPI with Vietnam veterans, especially those suffering from PTSD. (NRB)

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Limitations of the MMPI in the Research and Diagnosis of Posttraumatic Stress Disorder in Vietnam Veterans.

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The Use of the Minnesota Multipnasic Personality Inventory in the Assessment of Posttraumatic Stress Disorder

In October 1980, the Veterans Administration accepted posttraumatic stress disorder (PTSD), a diagnostic category that first appeared in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; 1980), as a potentially compensatable disorder. According to DSM-III, four basic criteria must be met in order to make a diagnosis of PTSD. To begin with, there must be some recognizable stressor, outside the range of "normal" human experience, that would evoke significant symptoms of distress in most people. Characteristic symptoms include: (1) reexperiencing the trauma through recurrent dreams or intrusive thoughts, (2) numbing of responsiveness or reduced involvement with the external world, and (3) a variety of associated symptoms including hyperalertness, sleep disturbances, guilt about surviving, memory impairment, and an intensification of symptoms following exposure to events that resemble the traumatic event.

Depending upon the data one chooses to subscribe to, there are between 500,000 and 800,000 Vietnam veterans at risk of developing PTSD, or in need of help as a result of PTSD (Egendorf, Kadushin, Laufer, Rothbart &

Sloan, 1981; Lipkin, Blank, Parson, & Smith, 1982). As a result of this high incidence of reported PTSD among Vietnam veterans, V.A. researchers and health care workers have been giving considerable attention to the search for reliable assessment and treatment of this disorder (Fairbank, Langley, Jarvie, & Keane, 1981; Silver, 1982). Fairbank, Keane, & Malloy (1983) have suggested that for those mental health professionals who are increasingly being confronted with Vietnam veterans displaying the symptoms of PTSD, the most pressing needs are for assessment procedures that are reliable, valid, and easy to use. Unfortunately, very little empirical support exists for the reliability and validity of any approaches used to assess PTSD, especially among Vietnam veterans.

Although most assessment strategies for PTSD in Vietnam veterans rely on structured interviews (Atkinson, Henderson, Sparr, and Deale, 1982; Figley, 1977; Wilson, 1978), some researchers (Penk, Robinowitz, Roberts, Patterson, Dolan, & Atkin, 1981; Stampler, & Sipprelle, 1981; Fairbank, Keane, & Malloy, 1983; Keane, Malloy, & Fairbank, 1984), have begun to use standardized tests to differentiate PTSD veterans from non PTSD veterans. both approaches, however, have drawbacks. Interviews are subject to interviewer bias, while standardized

psychological tests have not, as yet, been thoroughly validated. One such test that has been and is currently being investigated, is the Minnesota Multiphasic Personality Inventory (MMPI). Although some encouraging preliminary data on the use of the MMPI have been obtained, it is uncertain if this instrument can be confidently used to assess PTSD in Vietnam veterans.

Penk et al., (1981) compared test results of combat and noncombant Vietnam veterans who were seeking treatment for substance abuse. Although combat veterans reported significantly more psychological problems on a symptom checklist, the two groups could not be reliably discriminated on the basis of their MMPIs. The groups could not be discriminated by either an overall profile or an item by item analysis. In another study using Vietnam veterans receiving treatment for substance abuse, Roberts, Penk, Gearing, Robinowitz, Dolan, and Patterson (1982) found that those veterans who scored highest on a scale assessing the symptoms of PTSD scored significantly higher on MMPI scales 4 (Psychopathic deviance), 6 (Psychasthenia), and 0 (Social introversion) than did those who scored low on the PTSD scale. Subsequently, Foy, Sipprelle, Rueger, and Carroll (1984) found that Vietnam vets who scored higher on a PTSD stress scale reported greater elevations

on the MMPI scales 8 (Schizophrenia), 2 (Depression), 6 (Paranoia), 7 (Psychasthenia), and 0 (Social introversion) than did those veterans who scored lower on the scale. Although these authors concluded that the MMPI had moderate ability to correctly classify subjects on the basis of a PTSD diagnosis, they found that a problem checklist indicative of anxiety-based disorders was more effective in classifying the groups.

Stample and Sipprelle (1981) found that veterans who meet the diagnostic criteria for PTSD exhibited higher levels of pathology than did those veterans who did not meet the diagnostic criteria. In addition, those meeting the criteria also exhibited elevations of MMPI scales 8 (Schizophrenia), 2 (Depression), and 7 (Psychasthenia). This profile for PTSD Vietnam veterans was also found by Fairbank et al., (1983). These researchers discriminated Vietnam veterans with a previous diagnosis of PTSD from a group of well adjusted combat veterans and from a group of veterans with other nonpsychotic psychological diagnoses. Given the extremely small sample size, the effect size appears to be very robust.

While there appears to be a fair amount of evidence that PTSD Vietnam veterans score higher on some MMPI scales than non PTSD comparison groups, there has been

little agreement as to the specific scales. Thus, taken as a whole, the previously cited studies have not yielded consistent results. However, some recent investigations have generally yielded more consistent results. Two of these studies have shown that scale 8 (Schizophrenia) and scale 2 (Depression) can reliably differentiate PTSD veterans from non PTSD veterans (Fairbank et al., 1983; Keane, Malloy, and Fairbank, 1984).

According to Greene (1980), patients exhibiting an 8-2/2-8 high point pair are experiencing severe depression, anxiety, agitation, and a fear of losing control. There is often associated confusion, forgetfulness, and difficulties in concentration and attention. Obsessive ruminations, withdrawal, social isolation, and sleep disturbances are also characteristics of these patients. In addition, the presence of schizophrenic features such as hallucinations and delusions may also be present. The similarity of all these symptoms, with the exception of the hallucinations and delusions, with the previously described symptoms of PTSD is apparent. Thus, the 8-2/2-8 high point pair has some fare validity for describing the behavioral correlates of PTSD.

Although it has been suggested that an 8-2/2-8 high point pair can be used to differentiate PTSD veterans from

non PTSD veterans, the results are not as conclusive as one is led to believe. In both the Fairbank et al. and the Keane et al. studies, for example, both groups of Vietnam veterans (PTSD and non PTSD) produced an 8-2 high point pair. The difference between the groups was in the elevation of these pairs. In fact, the PTSD group produced significantly higher elevations on all clinical scales except scale 5 (Masculinity-Femininity). Thus, PTSD veterans appear to be in significantly greater psychological distress than non PTSD veterans.

Given these results, a veteran with an 8-2/2-8 high point pair may or may not be diagnosed as PTSD. Because both groups of Vietnam veterans produce the same high point pair (they only differ in elevations and scatter), the MMPI may be tapping the general Vietnam experience. The unique nature of the Vietnam War, which is something that all Vietnam veterans experienced, may invalidate the items in the MMPI for the use with Vietnam veterans. That is, by having lived through the war, one may tend to answer the MMPI questions in some biased or altered way. This becomes especially apparent when we examine specific items such as, "I have seen strange or bizarre things in my life" or "I have done things for which I feel guilty." Although these are only two items out of 566, it is possible that

many other items may be similarily biased, albeit not so blatantly.

To deal with the finding that both PTSD and non PTSD veterans obtain the same high point pairs, Keane et al. devised a decision rule to aid in the identification of PTSD subjects. Cut-off scores were calculated that were one standard deviation below the PTSD group mean for scales 2 (Depression), 8 (Schizophrenia) and F. Subjects with scores above these points are classified as PTSD, while those with scores below these points are classified as non PTSD. The following t scores are used by Keane et al. as cut-off scores: scale 2 (78), scale 8 (79), and F (66). These cut-off scores result in a 74% correct classification hit-rate. Although using these cut-off scores seems to be an appropriate way of differentiating PTSD veterans from non PTSD veterans, others have suggested different cut-off scores. In an unpublished manuscript, for example, Iacono, Silver and Willis (1984) suggest that scales 2 and 8 be equal to or above a t score of 85 and the mean profile elevation of the patient must be between a t score value of 74 and 80. Thus, even by narrowing the criterion for classification of PTSD, there is little agreement.

Another approach taken in using the MMPI to assess

PTSD was performed by Keane, et al. (1984). In this attempt, a chi-square analysis was performed on MMPI items to determine which items would discriminate PTSD from non PTSD subjects. Forty-nine items were found and summed to produce a PTSD scale score. The frequency distribution of PTSD scale scores in the validation sample indicated that 30 was the optimal cutting score for disciminating the two groups. An individual analysis of the PTSD subscale items shows that many of the items seem to be related to the specific symptoms of PTSD: intrusive thoughts and dreams, numbing of responsiveness, hyperarousal, cognitive problems, and fear of loss of control. Some of the items also seem biased against the Vietnam veteran in that they directly tap the presence of strange or bizarre experiences, and guilt feelings. In the validation study, the PTSD group produced significantly higher mean scores ($\bar{x}$ = 37) on the PTSD subscale than did the controls ($\bar{x}$ = 20). Unfortunately, there is no other empirical evidence evaluating this subscale.

There are several methodological problems in MMPI research on PTSD. To begin with, the validity of the profiles used are rarely, if ever, discussed in the research. It is possible that some of the profiles used are invalid, and the appropriateness of using these profiles

would be questionable. In the one study reporting validity, a profile was considered valid if the L scale was $\leq$ 60, the F scale was $\leq$ 85 and the K scale was $\leq$ 70 (Iacono, et al., 1984). Another problem is that all studies used mean profiles to determine the typical profile pattern. This raises the possibility that no single individual may have actually displayed an 8-2 profile configuration. In the Iacono, et al. study, for example, only 50% of the PTSD group actually displayed an 8-2 high point pair. That 50% of the PTSD group did not display this profile clearly, shows that additional study of the MMPI in the assessment of PTSD is needed.

In addition to the above mentioned problems, there has been a significant lack of replicability. This limited replicability across studies may be due in part to the rather small sample sizes used. Fairbank et al., for example, attempted to differentiate three groups of 12 subjects each across four dependent measures using the extremely demanding multiple discriminant analysis (MDA) procedure. Although the authors correctly offered only guarded interpretations of the results, the lack of sufficient statistical power in the study may explain why the exact pattern of subscale differences do not correspond to other studies.

Another possible explanation for the variability in results across studies is the lack of corresponding sampling procedures. As a subject pool for their PTSD group, both Penk et al. (1981) and Roberts, Penk, Gearing, Robinowitz, Dolan, and Patterson (1982) used veterans seeking treatment for substance abuse disorders. Fairbank et al., (1983), on the other hand, defined their PTSD group as Vietnam combat veteran patients in a Vietnam stress management program designed for treatment of combat induced PTSD. Selection bias among these studies may make their results incomparable.

The flaws in the MMPI-PTSD literature are not fatal, however. With closer attention to sampling procedures, more sample-specific discussion of results, and greater concern for the statistical power of individual studies, researchers in the area can expect to make progress toward reliably discriminating PTSD Vietnam veterans from non PTSD Vietnam veterans. Moreover, even with the variability among results, the data indicate that PTSD Vietnam veterans do score higher on most MMPI subscales when compared to non PTSD Vietnam veterans. Consequently, there is a dire need for more research on the use of the MMPI with Vietnam veterans, especially those suffering from PTSD. At present, it is unclear if the MMPI can be used by a

clinician to reliably distinguish Vietnam veterans with PTSD from other Vietnam veterans.

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